IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appln. No:	10/564,594
Applicant:	Stephen William Sankey, et al.
Filed:	May 15, 2006
Title:	SELF-VENTING POLYMERIC FILM
TC/A.U.:	1783
Examiner:	William P. Watkins, III
Confirmation No.:	1832
Notice of Appeal:	September 12, 2011
Docket No.:	DTG1-126US

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

S I R :

Responding to the Decision from Pre-Appeal Brief Review of October 13, 2011, Appellants file this Brief, appealing the May 11, 2011, final rejection of claims 1-20 and 30-33 and requesting reconsideration and reversal of that rejection.

I. REAL PARTY IN INTEREST

The Real Party In Interest is the assignee, DuPont Teijin Films U.S. Limited Partnership.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences related to this Appeal.

III. STATUS OF CLAIMS

Claims 1-27 and 30-33 are the claims pending in the application, claims 28-29 having been canceled. Claims 21-27 are withdrawn from examination. Claims 1-20 and 30-33 are under examination, and all of them stand rejected. The rejections of claims 1-20 and 30-33 are all appealed.

IV. STATUS OF AMENDMENTS

No amendments were filed after the Final Office Action, and all amendments requested by Appellants have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Independent claim 1 recites a heat-sealable[1], composite[2] film comprising a biaxially oriented polymeric substrate layer having a first and second surface[3], and disposed on a surface of the substrate layer a water-soluble barrier layer[4] extending over the entire surface[5], wherein

(i) the substrate layer has one or more venting means therein[6]; and
(ii) the thickness of the barrier layer is from about 0.05 to about 40 μm[7].

Claim 1 is independent. Claims 2, 3, 6-10, 16 and 18 depend directly from claim 1. Claim 4 depends from claim 3 and claim 5 depends from claim 4. Claims 11-13 and 15 depend from claim 10, and claim 14 depends from claim 13. Claim 17 depends from claim 16. Claim 19 depends from claim 18, and claim 20 depends from either claim 18 or claim 19. Claims 30-31 depend from claim 11. Claims 32-33 depend from claim 12.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1-20 and 30-33 are unpatentable under 35 U.S.C. § 103(a) over WO 01/92000 A1 ("Lin") in view of U.S. 4,515,841 ("Dyke") and further in view of U.S. 6,682,792 ("Schmal").

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[1] Specification, page 2 line 29
[2] Specification, page 2 line 29
[3] Specification, page 2 line 30
[4] Specification, page 2 lines 30-31
[5] Specification, page 11 line 20
[6] Specification, page 2 line 32 and Fig. 1 (a-h)
[7] Specification, page 2 line 33

VII. ARGUMENT

A. Claims 1-20 and 30-33 are not prima facie obvious under 35 U.S.C. § 103(a) over WO 01/92000 A1 ("Lin") in view of U.S. 4,515,841 ("Dyke") and further in view of U.S. 6,682,792 ("Schmal"), and the rejection should be reversed.

Claims 1-20 and 30-33 are rejected under 35 USC § 103(a) as unpatentable over WO 01/92000 A1 ("Lin") in view of U.S. 4,515,841 ("Dyke") and further in view of U.S. 6,682,792 ("Schmal"). The rejection relies upon Lin to provide most of the features of independent claim 1. The Examiner admits that Lin does not explicitly teach use of a water soluble layer (as recited in Appellants' claim 1) for Lin's sealing layer 16,[8] but considers that it would have been obvious to use a water soluble material (polyvinyl alcohol) such as taught by Dyke for that layer. Schmal is relied upon to teach the use of biaxially oriented films.

Lin teaches a composite film, suitably for packaging a food or medical clinical article for heating in a microwave oven. As seen in the Abstract and the corresponding Figure, the film has a perforated (with "gaps") polymer layer 10 upon which resides a sealing layer 16, which provides air impermeability and water repelling abilities.[9] Lin describes the desired attributes of a bag made from this material as follows.

> In order to ensure a germ, bacteria and fungus free environment when packaging food and medical clinical articles, food or clinical swabs can be sealed in the packaging bag 120 followed by a high-temperature sterilization, sanitizing and/or ultraviolet radiation treatment. During the sterilization process, the bag inflates and the sealing ability of the sealing material decreases. Hot and high pressure air ventilates through the gaps in the permeable packaging bag. After the sterilization process, the temperature of the packaging bag returns to room temperature. The molten sealing material solidifies and re-seals the gaps while the temperature decreases. The sealing abilities of the

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[8] Lin also does not teach a water-soluble layer implicitly or inherently, as Appellants explained in their response to the Final Office Action. The Examiner has not contested this point. Thus, the Examiner's statement (Final Office Action, page 4) that some starches, fatty acids and surfactants are not water insoluble is irrelevant. Any that Lin might consider using cannot be water soluble.

[9] Lin, page 5 lines 1-6

> sealing material returns. Additionally, the packaging bag will have the appearance of a vacuum-packed bag due to volume contraction at a lower temperature. Therefore, the storage period of germ-free packaged food or clinical products is extended. Therefore, this process is most convenient for cooking fresh meat within the sealed bag and the sealed cooked meat can be frozen and be re-heated with microwave oven directly. Most importantly, the packaging bag 120 can be made almost fully transparent. And as previously explained, the packaging bag 120 is re-usable, and may be used repeatedly for leftovers, for freezing or refrigeration, or for general storage, and subsequent re-heating within a microwave oven.[10]

It would not have been obvious to use a water soluble polymer to make Lin's sealing layer 16, for at least two reasons. First, Lin requires that the sealing layer soften/melt with high temperature and then resolidify upon cooling, but a water soluble material, once dissolved, cannot do this. Second, Lin requires that layer 16 be water-repelling or waterproofing, a feature that a water soluble material also cannot provide. Each of these deficiencies of Dyke's water soluble polyvinyl alcohol would render Lin's film unsuitable for its intended purpose, as will now be discussed in detail, and therefore the proposed modification would not have been obvious[11] at the time Appellants' invention was made.

i. Water-repelling or waterproofing is required by Lin, but is not provided by the Examiner's proposed modification of Lin's invention.

Lin repeatedly emphasizes that water repelling or waterproofing are essential to her invention, including the following statements.

"The sealing layer [layer 16] ... provides the air permeable composite film with water repelling abilities ...".[12] (emphasis added)

"In order to seal the gaps so as to provide the air permeable packaging bag with water repelling abilities ... a sealing layer is formed on the surface of the folded polymer layer."[13] (emphasis added)

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[10] Lin, paragraph spanning pages 15 and 16

[11] If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

"In order to seal the gaps so as to provide the air permeable packaging bag with water repelling abilities ... a sealing layer is formed on the surface of the folded polymer layer."[13] (emphasis added)

"The sealing layer 16 provides the structure 102 with waterproofing abilities, and better thermal insulating properties."[14] (emphasis added)

The sealing layer 16 keeps the gaps 15 both sealed and air impermeable, and provides the structure 102 with water repelling abilities ...".[15] (emphasis added)

"In the preferred embodiment, Paraffin is used [in sealing layer 16] due to its superior water repelling characteristics, and because of its vapor permeability."[16] (emphasis added)

Appellants have pointed out, and the Examiner has not disputed,[17] that making Lin's layer 16 from a water soluble material would make water repellency unachievable. Instead, the Examiner contends[18] that this feature is not essential to Lin's invention. As seen above, Lin clearly states otherwise.

The Examiner admits that the polyvinyl alcohol used by Dyke dissolves upon absorption of steam, and in fact forms an opening.[19] Thus, it is not water-repelling or waterproofing as Lin requires, and this defect alone would cause the use of Dyke's polyvinyl alcohol in Lin's sealing layer 16 to make Lin's film unsuitable for its stated intended purpose of waterproofing/repelling. Schmal deals with the use of biaxially oriented films, and does not remedy this deficiency. For this first reason, then, the proposed modification of Lin according to the teachings of Dyke would not have been obvious to the person of ordinary skill in the art at the time Appellants' invention was made, and the rejection is in error.

ii. Resolidification of Lin's sealing layer 16 upon cooling is required to reseal Lin's films, but is not provided by the Examiner's proposed modification of Lin's invention to use polyvinyl alcohol to make that layer.

Regarding resolidification upon cooling, Lin states as follows.

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[13] Lin, page 5 lines 1-5
[14] Lin, page 10 lines 20-31
[15] Lin, page 10 line 31 to page 11 line 1
[16] Lin, page 12 lines 5-7
[17] Appellants' response dated July 11, 2011, page 6, 3rd paragraph
[18] Office Action, page 4

"On the other hand, when the heating source is removed, the temperature of the composite film structure 102 decreases and the sealing layer 16 regains its sealing abilities."[20] (emphasis added)

"During the sterilization process, the bag inflates and the sealing ability of the sealing material decreases. Hot and high pressure air ventilates through the gaps in the permeable packaging bag. After the sterilization process, the temperature of the packaging bag returns to room temperature. The molten sealing material solidifies and re-seals the gaps while the temperature decreases. The sealing abilities of the sealing material returns (sic)."[21] (emphasis added)

"... on the other hand, when the heating source is removed, the temperature of the composite film decreases and the sealing ability of the sealing layer is restored."[22] (emphasis added)

As noted above, the Examiner's own view is that the polyvinyl alcohol used by Dyke dissolves upon absorption of steam and forms an opening. The person of ordinary skill in the art would not expect such a material to resolidify upon cooling and reseal the hole as Lin requires, nor does Dyke indicate that it does.

Appellants have pointed out that making Lin's layer 16 from a water soluble material would not provide Lin's recited feature of resealability upon cooling.[23] The Examiner has not disputed this, but contends that Lin does not in fact require resealability upon cooling, and that resealability by other means (drying) would be sufficient for Lin's purposes.[24] As seen from the foregoing citations to Lin, this contention is in error.

Lin is quite clear that sealing layer 16 must reseal by resolidifying upon cooling. The Examiner instead proposes his own definition of Lin's requirements, saying that "The essential function of Lin is that the sealing film and substrate vent when exposed to steam during cooking."[25] This is simply incorrect. Lin does not teach that steam exposure causes venting. Lin is very clear about how the package vents, and it is not by exposure to steam.

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[19] Final Office Action page 3 lines 3-5
[20] Lin page 11 lines 23-25
[21] Lin page 15 lines 24 to 31
[22] Lin claim 1 lines 16-19
[23] Appellants' response dated July 11, 2011, page 6, 3rd paragraph
[24] Office Action page 4 point 4
[25] Office Action page 4 at point 4

Specifically, Lin teaches that increases in pressure and temperature are the cause, saying that "When the composite film structure 102 comes into contact with hot air, the heat of the hot air will degrade the sealing ability of the sealing layer 16, opening the pseudo-closed tiny gaps 15 ...".[26] (emphasis added) Then, "... when the heating source is removed, the temperature ... decreases and the sealing layer 16 regains its sealing abilities."[27] (emphasis added)

As the Examiner admits,[28] the polyvinyl alcohol used by Dyke dissolves upon absorption of steam. Nothing in Dyke indicates that the resulting aqueous polyvinyl alcohol solution is capable of resolidifying and re-sealing upon cooling. Dyke is interested only in opening pores in a bag to admit steam for sterilizing biohazardous waste prior to disposal.[29] Consequently, Dyke has no interest in resealing the bag, and understandably provides no teaching that resealing by resolidification, or by any other means, should (or does) occur. As Appellants pointed out in their response to the preceding (non-final) Office Action, the aqueous polyvinyl alcohol solution produced by dissolving Dyke's polyvinyl alcohol does not solidify upon cooling.[30] The Examiner has not contested this point.

Instead, the Examiner states that when steam is no longer present the water soluble layer made of Dyke's polyvinyl alcohol would dry out.[31] The Examiner points to EP 1086809 (Abstract; attached herewith as Annex A) as a teaching reference (it is not relied upon in the rejection) that "... teaches the use of water soluble films as films that can be resealed and as films that can seal a package for dry goods."[32] As the Examiner admits, this is done by drying out. It is not done by resolidification upon cooling, as Lin requires.

The Board will recognize that the plain meaning of "cooling" is different from "drying." Dissolution is different from heat-induced softening or melting, and it is not reversed by cooling. Lin plainly states, repeatedly, that the sealing layer re-seals by resolidification upon cooling. The rejection ignores Lin's own repeated statements defining this essential feature of her invention, and substitutes different and erroneous performance criteria to support a proposed modification that would in fact be inconsistent with Lin's

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[26] Lin, page 11 lines 16-18
[27] Lin, page 11 lines 23-25
[28] Final Office Action, page 3 lines 3-5
[29] Dyke, column 3 lines 31-36
[30] Appellants' response dated July 11, 2011, page 7, 3rd paragraph and page 9, line 1
[31] Advisory Action mailed on July 26, 2011, page 2
[32] Final Office Action page 4

clearly stated requirements. In sum, then, the use of Dyke's polyvinyl alcohol in Lin's sealing layer 16 would have been seen to make Lin's film unsuitable for its stated intended purpose of resealing via resolidification upon cooling. Schmal deals with the use of biaxially oriented films, and does not remedy this deficiency. Thus, for this additional reason the proposed modification of Lin according to the teachings of Dyke would not have been obvious to the person of ordinary skill in the art at the time Appellants' invention was made, and the rejection is in error.

The Examiner then proposes an alternative argument, contending that resealability by resolidification upon cooling is in any case merely optional in some applications. "Whether a seal layer needs to be reusable or not depends on the economics of the particular application and also would have clearly been an optional feature to one of ordinary skill in the art."[33] Be that as it may, the dispositive issue is whether the resolidification feature (which allows reuse in the way Lin intends) is required for purposes of Lin's invention, not some other imaginary one or one suggested by Appellants' disclosure, improperly viewed in hindsight. Appellants have shown that it is indeed required and that using Dyke's polyvinyl alcohol would not provide it. Thus, this alternative rationale for modifying Lin according to Dyke is also in error.

At the heart of the rejection is an incorrect premise. That premise is that because venting during microwave cooking is an essential feature of Lin's structure, the other essential features of water-repellency and resolidifying upon cooling are unimportant and would have been ignored by the person of ordinary skill in the art. Proceeding from this faulty premise, the Examiner contends in essence that any structure that provides venting and resealing by any means would have been obvious, even if it failed to provide other features required by Lin. But it is not obvious to modify a reference in a way that destroys any essential feature. As Appellants have shown, the proposed modification would have destroyed at least two essential features (water repellency and resealing upon cooling), and making that modification therefore would not have been obvious.

Lin makes it clear that the ability to solidify upon cooling is essential, saying "when the heating source is removed, the temperature ... decreases and the sealing layer 16 regains its sealing abilities". (emphasis added) But using a water-soluble material that dissolves in water (as the Examiner admits) in Lin's sealing layer 16 would not provide this

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[33] Office Action page 4

feature, and it would therefore not have been obvious to make this proposed modification. Thus, the rejection should be withdrawn.

iii. The proposed modification of Lin in view of Dyke would change the principle of operation of Lin's invention, and would not have been obvious.

As noted above, Lin's layer 16 is designed to achieve reversible venting by melting/softening under heat and pressure, then resolidifying upon cooling. As a first point, the venting feature therefore uses a different principle of operation than dissolving under the influence of steam, which is how the Examiner indicates use of Dyke's polyvinyl alcohol in Lin's sealing layer 16 would work. Secondly, any resealing of the film, if indeed it occurred at all, would not occur by cooling-based resolidification, but by drying (i.e., evaporation of water). Thus, the required re-sealing feature of Lin's invention would also occur via a different principle of operation. Each of those changes in the principle of operation of Lin's invention is sufficient to preclude obviousness under 35 U.S.C. § 103 of the proposed modification to Lin's invention.[34] Schmal deals with the use of biaxially oriented films, and does not remedy this deficiency.

B. Conclusion

"A prior patent must be considered in its entirety, i.e., as a whole, including portions that would lead away from the invention in suit." *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561, 1575 (Fed.Cir.1987). A fair reading of Lin, taken in its entirety, leads to the conclusion that a water soluble material such as Dyke's polyvinyl alcohol would have been seen by the person of ordinary skill as an unsuitable material for making Lin's water-repelling, heat-softenable/resolidifiable sealing layer 16. Appellants therefore submit that the Examiner has not established *prima facie* obviousness.

All of the rejections are in error, for at least the reasons cited above. Appellants therefore ask the Board to reverse the rejection of claims 1-20 and 30-33 as unpatentable under 35 U.S.C. § 103(a) over Lin in view of Dyke and further in view of Schmal.

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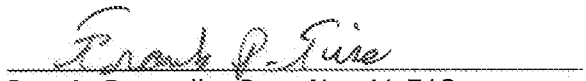
[34] If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) See MPEP at 2143.01 VI.

Respectfully submitted,



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VIII. CLAIMS APPENDIX

What is claimed:

1. A heat-sealable, composite film comprising a biaxially oriented polymeric substrate layer having a first and second surface, and disposed on a surface of the substrate layer a water-soluble barrier layer extending over the entire surface, wherein

(i) the substrate layer has one or more venting means therein; and

(ii) the thickness of the barrier layer is from about 0.05 to about 40 μm.

2. The film according to claim 1 wherein the thickness of the barrier layer is from about 5 to about 30 μm.

3. The film according to claim 1 wherein the barrier layer is selected from polysaccharides, polyvinyl alcohol, vinyl alcohol copolymers, polyvinylpyrrolidone and polypeptides.

4. The film according to claim 3 wherein the barrier layer is selected from chitosan, xanthan gum, cellulose derivatives, starch and starch derivatives and vinyl acetate-vinyl alcohol-polyoxyalkylene methacrylate copolymers.

5. The film according to claim 4 wherein the barrier layer is disposed on the first surface of the substrate.

6. The film according to claim 1 wherein the substrate layer is a polyolefin.

7. The film according to claim 1 wherein the substrate comprises polyester.

8. The film according to claim 1 wherein the substrate comprises polyethylene terephthalate.

9. The film according to claim 1 wherein the substrate layer is a heat-sealable layer.

10. The film according to claim 1 wherein there is disposed on the second surface of the substrate layer a heat-sealable layer.

11. The film according to claim 10 wherein the heat-sealable layer is a copolyester derived from ethylene glycol, terephthalic acid and isophthalic acid.

12. The film according to claim 10 wherein the heat-sealable layer is a copolyester derived from terephthalic acid, ethylene glycol and 1,4-cyclohexanedimethanol.

13. The film according to claim 10 wherein the heat-sealable layer is a copolyester derived from an aromatic dicarboxylic acid, an aliphatic dicarboxylic acid and a stoichiometric amount of one or more glycols, wherein the concentration of said aromatic dicarboxylic acid in the copolyester is in the range from 50 to 55 mole % based on all the dicarboxylic acid components of the copolyester, and the concentration of said aliphatic dicarboxylic acid in the copolyester is in the range from 45 to 50 mole % based on all the dicarboxylic acid components of the copolyester.

14. The film according to claim 13 wherein said aromatic dicarboxylic acid is terephthalic acid, wherein said aliphatic dicarboxylic acids are selected from sebacic acid, adipic acid and azelaic acid, and wherein the glycol component is ethylene or butylene glycol.

15. The film according to claim 10 wherein said heat-sealable layer comprises an ethylene vinyl acetate (EVA) having a vinyl acetate content in the range of 9% to 40%.

16. The film according to claim 1 wherein the venting means comprises incisions which are from about 1 to about 40 mm in length.

17. The film according to claim 16 having from 1 to 100 incisions per 200 cm^2.

18. The film according to claim 1 wherein the venting means comprises perforations having an average diameter from about 0.05 to about 1.5 mm.

19. The film according to claim 18 wherein the venting means comprises from about 1 to about 100,000 perforations per 200 cm^2.

20. The film according to claim 18 or 19 wherein the substrate has a degree of perforation of from about 0.001 to about 50%.

30. The film according to claim 11 wherein the molar ratio of the terephthalic acid component to the isophthalic acid component is in the range from 65:35 to 85:15.

31. The film according to claim 11 wherein the molar ratio of the terephthalic acid component to the isophthalic acid component is about 82:18.

32. The film according to claim 12 wherein the molar ratio of 1,4-cyclohexanedimethanol to ethylene glycol is in the range from 30:70 to 35:65.

33. The film according to claim 12 wherein the molar ratio of 1,4-cyclohexanedimethanol to ethylene glycol is about 33:67.

IX. EVIDENCE APPENDIX

Annex A – EP 1086809 Abstract

X. RELATED PROCEEDINGS APPENDIX

No proceedings other than the present Appeal have transpired relating to the subject matter thereof, and no related decisions have been rendered by a court or the Board.

ANNEX A

INTELLECTUAL PROPERTY OFFICE

Espacenet

Bibliographic data: EP 1086809 (A2)

Aroma-proof reclosable package for dried goods

Publication date:	2001-03-28	
Inventor(s):	HASCHKE HEINZ DR [AT]; NEKULA LAMBERT [AT] +	
Applicant(s):	TEICH AG [AT] +	
Classification:	**- international:**	***B32B27/30; B32B7/04; B65D65/46; B65D75/44;*** (IPC1-7): B32B27/30; B65D65/40
	- european:	B32B27/30; B32B7/04; B65D65/46
Application number:	EP20000890264 20000831	
Priority number(s):	AT19990001618 19990922	
Also published as:	• EP 1086809 (A3) • AT 408631 (B)	
Cited documents:	US5914368 (A)	GB1102244 (A) US3316190 (A) US3574153 (A) View all

Abstract of EP 1086809 (A2)

Packaging material with sealing edges consists of water-insoluble base material laminated with a cold water-soluble film of polyvinyl alcohol (PVAL) or starch-acetalized PVAL, arranged so that the water-soluble film overlaps to form welded bonding zones for sealing the pack, which can be resealed after opening by moistening the soluble film. Packaging with an envelope consisting of a foldable sheet of packaging material in the form of a laminate with at least two edges forming the bonding zone to make the envelope, in which: (a) the laminate comprises a water-insoluble base material (A) and a cold water-soluble film (B) consisting of polyvinyl alcohol (PVAL) with a degree of hydrolysis (DH) of 83-95 mol%, or acetals of PVAL with DH values (for liberation of OH groups from polyvinyl acetate) of 80-98 mol%, up to 50 wt% acetalized with starch; (b) the edges of the laminate layers are arranged with the water-soluble films overlapping one another to form welded bonding zones for sealing the pack; and (c) the opened pack can be resealed by moistening the soluble film at the edges.; An Independent claim is also included for a process for the production of packaging material by bringing two strips of the above laminate together by means of rollers, so that two edges of the cold water-soluble film overlap to form bonding zones (for cold- or hot-welding).

Last updated: 12.10.2011 Worldwide Database 5.7.23.2; 92p